

Patent Application

of

Stephen J. Madigan

Jean Blaydes Madigan

Larry E. Hess

Cynthia A. Hess

for

**TITLE: EDUCATIONAL TRACKS AND
APPARATUSES**

CROSS-REFERENCE TO RELATED APPLICATIONS

Not Applicable

FEDERALLY SPONSORED RESEARCH

Not Applicable

SEQUENCE LISTING OR PROGRAM

Not Applicable

BACKGROUND OF INVENTION

Field of Invention

[0001] The invention relates to educational equipment over which a human horizontally traverses using its lower limbs to promote, foster, and facilitate learning adapting brain research findings that support the link of movement to learning said educational equipment comprising one or more tracks, straight, arced, or curved, and design apparatuses comprising one or more of said tracks.

Description of Prior Art and Related Art

[0002] Apparatuses traversed horizontally by a human have been previously developed for educational, athletic, and therapeutic purposes. These apparatuses include equipment traversed using the upper limbs and the lower limbs. The term horizontal ladder has been used to describe monkey bar like apparatuses traversed using the upper limbs. Refer to U.S. Pat. Nos. 4,149,712 issued in April of 1979 to Murphy; 4,627,612 issued in December of 1986 to Gehlbach; and 5,203,752 issued in April of 1993 to Frankel. The following discussion will be limited to prior and related art apparatuses traversed using the lower limbs.

[0003] U.S. Pat. No. 3,339,920 issued in September of 1967 to Moritz, titled "Child's Coordination Training Device," describes an enclosed, rectangular ladder that may be used in horizontal and inclined positions, the latter position with the aid of one or two supports also described in the patent. The ladder is comprised of two elongated, rectangular rails joined together by a series of rungs affixed to the interior sides of the rails and two end boards each affixed to the ends of the rails at each end of the ladder. The rungs and end boards are perpendicularly affixed to the rails serving to hold the opposing rails parallel to one another. The end boards and the rails are of the same height. The ladder is intended to be used in an educational environment to increase perception, attentiveness, and coordination. The author states that learning ability is increased at an earlier age allowing for earlier assimilation of educational material.

[004] The prior art ladder is elongated and rectangular in shape whereas the invention comprises tracks that are not only elongated and rectangular but also arced and curved. The prior art ladder has affixed rungs whereas the invention comprises tracks with readily detachable or affixed steps. The prior art ladder is enclosed comprising end boards that hinder entering or exiting a ladder or traversing between ladders whereas the invention is free of end boards removing an obstruction to traversing the tracks. The prior art ladder has no means to connect to another ladder whereas the invention comprises tracks with means to connect to another track. The prior art ladder stands alone whereas the invention comprises design apparatuses comprising tracks, straight, arced, or curved, wherein each apparatus promotes, fosters, and facilitates learning in a far meaningful way than traversing a simple, elongated, enclosed, rectangular ladder. The invention further includes a distinct end coupler. This structure serves multiple purposes. First, it is used as an intermediate joining piece connecting with the ends of two non-contiguous tracks thereby bridging the ends of those tracks. Second,

it is used as an agent to traverse from one track to another. Finally, the distinct end coupler is used as a station from which a human receives traversing instructions. The invention further includes an anti-tip device serving to protect a human while a straight track is under foot and as an aid in assembling a straight track.

[0005] U.S. Pat. No. 3,582,068 issued in June of 1976 to Hallgren describes exercise and gymnastic equipment horizontally traversed by a human commonly referred to as a balance beam. The invention may be horizontally traversed by a human using the steps of a track or the top of each rail, as a balance beam.

[0006] U.S. Pat. No. 2,365,117 issued in December of 1944 to Stafford describes a physical training apparatus developed for the military. An elongated, rectangular ladder is an element of the apparatus. The track is in an elevated, horizontal position that may be traversed by a walking or running human. However, there is no mention whether the ladder is intended to be traversed using the lower limbs. The invention comprises tracks, straight, arced, or curved, horizontally traversed and does not include each element of the physical training apparatus.

[0007] U.S. Pat. No. 2,620,185 issued in December of 1952 to Harding describes a climbing and sliding apparatus used outdoors for exercise purposes. A human ascends the rungs of a ladder to a sliding position. The upper and lower limbs are used to ascend the ladder. Both the ladder and slide are elements of the invention. The invention comprises tracks, straight, arced, or curved, horizontally traversed and does not include each element of the climbing and sliding apparatus.

[0008] U.S. Pat. No. 3,747,233 issued in July of 1973 to Berryman describes a therapeutic walking apparatus used for therapeutic purposes. A horizontal planar platform is an element of the apparatus. The platform or walkway comprises a plurality of raised footprints upon which a walking human traverses. The footprints are positioned in two rows in an alternating fashion. The apparatus also comprises a single parallel bar attached to the platform and used by the traversing human as an aid. The invention comprises tracks, straight, arced, or curved, horizontally traversed and does not include each element of the therapeutic walking apparatus.

[0009] U.S. Pat. No. 5,924,960 issued in July of 1999 to Cohen describes a therapeutic walking apparatus used for therapeutic purposes. A horizontal planar platform is an element of the apparatus. The platform or walkway comprises a plurality of holes into which steps with dole ends are placed. The steps are positioned in two rows in an alternating fashion. A

human traverses the apparatus by either walking upon or over the steps. The apparatus also comprises a set of parallel bars attached to the platform and used by the traversing human as an aid. The invention comprises tracks, straight, arced, or curved, horizontally traversed and does not include each element of the therapeutic walking apparatus.

[0010] U.S. Pat. App. No. 2004/0009845 filed in January of 2004 by Johnson describes a balance and gait training board apparatus used for therapeutic purposes. The apparatus is comprised of a rectangular shaped planar platform on which detachable hurdles that may be flipped are positioned. The platform is comprised of two half sections coupled together by means independent of the hurdles. Each half section comprises an outer raised wall into which the hurdles are inserted and specifically spaced markings for gait assessment. A human horizontally traverses the apparatus by stepping on or over the hurdles. The invention comprises tracks, straight, arced, or curved, comprising two rails, joined together by steps. The preferred and second embodiments of the invention comprise rails with the means to connect to another track or a distinct end coupler. The invention does not include each element of the balance and gait training board apparatus.

[0011] U.S. Pat. No. 6,447,427 issued in September of 2002 to Myrland describes an agility training ladder. The ladder is comprised of two elongated non-rigid rails capable of folding and substantially planar shaped rungs. The rails are positioned parallel to one another. The ladder is positioned horizontally and traversed by a human primarily by alternatively stepping into rectangles formed by the rails and rungs. The invention comprises tracks, straight, arced, or curved, comprising two rigid rectangular, arced, or curved rails, respectively, joined together by rungs. Each rail comprises a means to connect to other tracks or a distinct end coupler. The invention does not include each element of the agility training ladder.

[0012] Unpatented prior and related art includes equipment comprising a rectangular foam board. Multiple boards may be arranged in the shape of a rectangular structure traversed horizontally. The boards are held together by hook and loop fabric located on the sides of each board. The invention comprises tracks, straight, arced, or curved, traversed horizontally and design apparatuses comprised of tracks and, if necessary, a distinct end coupler used to bridge the non-contiguous ends of tracks. The invention does not include each element of a rectangular foam board.

[0013] Unpatented prior and related art includes equipment comprising an elongated, rectangular pathway comprised of rungs immediately strung together by a cord. The pathway

is traversed horizontally. The invention comprises tracks, straight, arced, or curved, traversed horizontally and does not include each element of the pathway.

[0014] Unpatented prior and related art includes equipment comprising straight and curved foam boards each board comprising connecting elements located at each end of a board.

When the boards are joined, a balance beam is created that may be traversed horizontally in a straight or curved pattern. The invention comprises tracks, straight, arced, or curved, traversed horizontally and does not include each element of a straight or curved board.

Objects and Advantages

[0015] The primary object of the invention is to provide educational equipment that promotes, fosters, and facilitates learning adapting brain research findings that support the link of movement to learning. The result achieved by a human traversing a track or an apparatus, comprising tracks, is increased sensory motor development, longer focus and attention, coordination of motor skills, better balance in the vestibular system, awareness of basic rhythmic patterns, and improved learning readiness. The basic design of the tracks, including the shapes and colors of the steps, and the designs of the apparatuses provide the framework for the development of academic concepts including, but not limited to, color, shape, and number recognition, basic math operations, early literacy, reading readiness, handwriting skills, map skills, time concepts, and other basic early childhood curriculum.

[0016] Another object of the invention is to provide educational equipment that may be used simultaneously by more than one human thereby developing team concepts, peer help, and cooperation skills resulting in better social behavior and life skills.

[0017] Another object of the invention is to provide educational equipment with multiple uses diversifying the learning experience. A track and the apparatuses comprising tracks must be designed to accommodate lateral, longitudinal, circular, or elliptical traversing using the steps or a rail as a balance beam. A track and the apparatuses comprising tracks must be able to accommodate the stride, familiarity, and traversing method of different users. Accordingly, the distance between the steps, the height of the steps, and the distance between the rails should be adjustable.

[0018] Another object of the invention is to provide a convenient, simple means to connect a track directly to another track or indirectly to another track with the aid of a distinct end coupler.

[0019] Another object of the invention is to provide a means whereby a track or an apparatus, comprising tracks, may be easily assembled or disassembled or modified by adding or removing steps without the necessity of dismantling the track.

[0020] A further object of the invention is to provide increased safety beyond the design itself in an effort to avoid shifting or tipping of a track or apparatus comprising tracks while under foot.

[0021] Still another object of the invention is to provide educational equipment that may be easily transported and stored.

SUMMARY

[0022] The invention comprises tracks, straight, arced, or curved, distinct end couplers, an anti-tip device, and various design apparatuses comprising tracks and one or more distinct end couplers, if necessary. The invention is horizontally traversed by a human using the steps of a track or a rail as a balance beam. As a result learning is promoted, fostered, and facilitated. The invention is a significant improvement over prior art.

DRAWINGS – FIGURES

[0023] In the drawings, closely related figures share the same numbers but different alphabetic suffixes.

[0024] Figure 1 shows a perspective view of a prior art enclosed, rectangular ladder.

[0025] Figure 2A shows a topside view of a straight track.

[0026] Figure 2B shows a perspective view of a rectangular rail comprising a single row of elements located in whole or part at the interior side of the rail into or through which steps are inserted.

[0027] Figure 2C shows a perspective view of a rectangular rail wherein said rail comprises two rows of elements located in whole or part at the interior side of the rail into or through which steps are inserted.

[0028] Figure 3A shows a topside view of an arced track.

[0029] Figure 3B shows a perspective view of an arced rail comprising a single row of elements located in whole or part at the interior side of the rail into or through which steps are inserted.

[0030] Figure 3C shows a perspective view of an arced rail wherein said rail comprises two rows of elements located in whole or part at the interior side of the rail into or through which steps are inserted.

[0031] Figure 4A shows a topside view of a curved track.

[0032] Figure 4B shows a perspective view of a curved rail comprising a single row of elements located in whole or part at the interior side of the rail into or through which steps are inserted.

[0033] Figure 4C shows a perspective view of a curved rail wherein said rail comprises two rows of elements located in whole or part at the interior side of the rail into or through which steps are inserted.

[0034] Figure 5A shows a perspective view of a readily detachable rung with an oval shaped colored footing.

[0035] Figure 5B shows a perspective view of a readily detachable rung with a rectangular shaped colored footing.

[0036] Figure 5C shows a perspective view of a readily detachable rung with a triangular shaped colored footing.

[0037] Figure 6A shows a perspective view of an anti-tip device.

[0038] Figure 6B shows how an anti-tip device is used in the assembly of a straight track.

[0039] Figure 7A shows a perspective view of a distinct end coupler comprising a diamond shaped planar surface.

[0040] Figure 7B shows a perspective view of a distinct end coupler comprising an octagon shaped planar surface.

[0041] Figure 7C shows a perspective view of a distinct end coupler comprising a rectangular shaped planar surface.

[0042] Figure 8 shows a top side view of tracks comprising the design of a figure eight lying on its side using a diamond shaped distinct end coupler.

[0043] Figure 9 shows a top side view of tracks comprising the design of a figure eight lying on its side using an octagon shaped distinct end coupler.

[0044] Figure 10 shows a top side view of tracks comprising the design of a figure eight lying on its side laterally intersected at its center by a column of straight tracks using an octagon shaped distinct end coupler.

[0045] Figure 11 shows a topside view of tracks comprising the design of a figure eight lying on its side laterally and longitudinally intersected at its center by a column and a row of straight tracks using an octagon shaped distinct end coupler.

[0046] Figure 12 shows a topside view of tracks comprising the design of a circle enclosing a plus sign using rectangular shaped distinct end couplers.

[0047] Figure 13 shows a perspective view of a straight track with affixed rungs.

[0048] Figure 14 shows a perspective view an arced track with affixed rungs.

[0049] Figure 15 shows a perspective view of a curved track with affixed rungs.

[0050] Figure 16A shows a perspective view of an affixed rung with an oval shaped colored footing.

[0051] Figure 16B shows a perspective view of an affixed rung with a rectangular shaped colored footing.

[0052] Figure 16C shows a perspective view of an affixed rung with a triangular shaped colored footing.

[0053] Figure 17 shows a topside view of a straight track with affixed rungs and without track connecting elements.

[0054] Figure 18 shows a topside view of an arced track with affixed rungs and without track connecting elements.

[0055] Figure 19 shows a topside view of a curved track with affixed rungs and without track connecting elements.

[0056] Figure 20 shows a topside view of tracks comprising the design of a figure eight lying on its side.

[0057] Figure 21 shows a topside view of tracks comprising the design of a figure eight lying on its side laterally intersected at its center by straight tracks.

[0058] Figure 22 shows a topside view of tracks comprising the design of a figure eight lying on its side laterally and longitudinally intersected at its center by straight tracks.

[0059] Figure 23 shows a topside view of tracks comprising the design of a circle enclosing a plus sign.

DRAWINGS – REFERENCE NUMERALS

- 20 Prior art enclosed, rectangular ladder
- 21 Prior art elongated, rectangular rail
- 22 Prior art rung
- 23 Prior art rectangular end board
- 30 Preferred embodiment of a straight track
- 31 Preferred embodiment of a rectangular rail
- 32 Interior side of a rectangular rail
- 33 Top side of a rectangular rail
- 34 Exterior side of a rectangular rail
- 35 Bottom side of a rectangular rail
- 36 End of a rectangular rail
- 40 Preferred embodiment of an arced track
- 41 Preferred embodiment of an arced rail
- 42 Interior side of an arced rail
- 43 Top side of an arced rail
- 44 Exterior side of an arced rail
- 45 Bottom side of an arced rail
- 46 End of an arced rail
- 50 Preferred embodiment of a curved track
- 51 Preferred embodiment of a curved rail
- 52 Interior side of a curved rail
- 53 Top side of a curved rail
- 54 Exterior side of a curved rail
- 55 Bottom side of a curved rail
- 56 End of a curved rail
- 60 Track connecting element

- 61 Interfitting male connector, rail end
- 62 Interfitting female connector, rail end
- 63 Step insertion element
- 64 Square shaped rung insertion element
- 65 Upper row of square shaped rung insertion elements
- 66 Lower row of square shaped rung insertion elements
- 67 Anti-slide element
- 70 Readily detachable step, with geometrically shaped colored footing
- 71 Readily detachable rung
- 72 Affixed flange
- 73 Squared rung closure, with affixed flange
- 74 Geometrically shaped rung footing
- 75 Squared rung closure, with a threaded female fastener
- 76 Threaded male flange fastener
- 77 Readily detachable rung, oval shaped colored footing
- 78 Readily detachable rung, rectangular shaped colored footing
- 79 Readily detachable rung, triangular shaped colored footing
- 80 Anti-tip device
- 81 Elongated, rectangular shaped planar surface
- 82 Work holder area
- 83 Anti-tip element
- 84 Exterior work stop abutment
- 85 Interior work stop abutment
- 86 Step insertion element, exterior abutment
- 87 Square shaped rung insertion element, exterior abutment
- 90 Geometrically shaped distinct end coupler
- 91 Planar surface of distinct end coupler
- 92 Interfitting male connector, distinct end coupler side
- 93 Interfitting female connector, distinct end coupler side
- 94 Elongated bridging stripe, distinct end coupler
- 95 Distinct end coupler, diamond shaped
- 96 Distinct end coupler, octagon shaped

- 97 Distinct end coupler, rectangular shaped
- 130 Second embodiment of a straight track
- 131 Second embodiment of a rectangular rail
- 140 Second embodiment of an arced track
- 141 Second embodiment of an arced rail
- 150 Second embodiment of a curved track
- 151 Second embodiment of a curved rail
- 170 Affixed step, with geometrically shaped colored footing
- 171 Affixed rung
- 174 Geometrically shaped affixed rung footing
- 177 Affixed rung, oval shaped colored footing
- 178 Affixed rung, rectangular shaped colored footing
- 179 Affixed rung, triangular shaped colored footing
- 230 Third embodiment of a straight track
- 231 Third embodiment of a rectangular rail
- 240 Third embodiment of an arced track
- 241 Third embodiment of an arced rail
- 250 Third embodiment of a curved track
- 251 Third embodiment of a curved rail

DETAILED DESCRIPTION

Preferred Embodiment -- Figs 2A, 2B, 3A, 3B, 4A, 4B, 5A, 5B, 5C

[0060] The invention is an improvement to prior art. FIG 1 shows a perspective view of prior art, an enclosed rectangular shaped ladder 20 traversed horizontally by a human. The elements of said ladder consist of two elongated rigid, rectangular rails 21 each rail of equal dimensions. The rails are joined by rungs 22 of equal length, perpendicularly affixed to the interior side of each rail serving to hold the rails in a fixed parallel relationship to each other. Each affixed rung is of a height substantially the same. The rails are also held in place by two rectangular, rigid end boards 23 equal in height to the rails.

[0061] A preferred embodiment of the invention comprises straight 30, arced 40, and curved 50 tracks, each track comprising two rails joined together by readily detachable steps with a

geometrically shaped colored footing **70** and a means **60** to connect to other tracks. Said preferred embodiment is described below and claimed in independent Claim 1. For purposes of the specification and claims, an arc is defined as a segment of a circle, and a curve is defined as a line deviating from straightness.

[0062] FIG 2A shows a topside view of a straight track **30**. Said straight track comprises two rigid, rectangular rails each rail **31** of substantially equal dimensions joined together by readily detachable steps **70**. Each rail **31** comprises step insertion elements **63** located in whole or part at the interior side **32** of a rail into which a step **70** is inserted. An element **63** may accommodate the insertion of a step **70** into or through the interior side of the rail **32**, the top side of the rail **33**, or the exterior side of the rail **34**. The drawing depicts a straight track **30** comprising two rigid, rectangular rails **31** joined together by readily detachable rungs **71**, a type of step **70**. Each rail **31** comprises square shaped rung insertion elements **64** into which a rungs **71** with squared closures **75** are inserted. The elements **64** bore through each rail **31** from the exterior side **34** to the interior side **32**.

[0063] The straight track comprises elements **60** used to effect connections to a contiguous track or tracks, straight **30**, arced **40**, or curved **50**, or to a distinct end coupler **90**, thereby bridging the non-contiguous ends of tracks. The drawing depicts two interfitting male connections **61** in the shape of a tenon comprising the ends of each rail located at one end of the straight track and two interfitting female connections **62** in a shape corresponding to a recessed tenon comprising the ends of each rail located at the opposite end of the track.

[0064] The straight track is free of end boards as an element thereof removing an obstruction associated with prior art **23**. The obstruction hinders entering or dismounting a track or traversing two connected tracks.

[0065] FIG 2B shows a perspective view of a rectangular rail **31**. Each rail comprises step insertion elements **63** located in whole or part at the interior side of the rail **32**. An element **63** may accommodate the insertion of a step **70** into or through the interior side of the rail **32**, the top side of the rail **33**, or the exterior side of the rail **34**. The drawing depicts a single row of square shaped rung insertion elements **64** that accommodate rungs **71** with squared closures **75**. Said elements **64** bore through the rail from the exterior side **34** to the interior side **32**.

[0066] The ends of each rectangular rail **36** are comprised of an interfitting male connection **61** in the shape of a tenon and an interfitting female connection **62** in a shape corresponding to

a recessed tenon. These elements are used to effect connections with contiguous rails of tracks, straight 30, arced 40, or curved 50, or to a contiguous distinct end coupler 90, thereby bridging the non-contiguous rails of tracks.

[0067] The surface of the top side of a rectangular rail 33 may be smooth or semi-rough. An anti-slide element 67 is affixed to the bottom side of the rail 35.

[0068] FIG 3A shows a topside view of an arced track 40. Said arced track comprises two oblong, rigid, arced rails each rail 41 of substantially equal height and width joined together by readily detachable steps 70. Each rail 41 comprises step insertion elements 63 located in whole or part at the interior side 42 of a rail into which a step 70 is inserted. An element 63 may accommodate the insertion of a step 70 into or through the interior side of the rail 42, the top side of the rail 43, or the exterior side of the rail 44. The drawing depicts an arced track 40 comprising two rigid, arced rails 41 joined together by readily detachable rungs 71, a type of step 70. Each rail 41 comprises square shaped rung insertion elements 64 into which a rungs 71 with squared rung closures 75 are inserted. The elements 64 bore through each rail 41 from the exterior side 44 to the interior side 42.

[0069] The arced track comprises elements 60 used to effect connections to a contiguous track or tracks, straight 30, arced 40, or curved 50, or to a distinct end coupler 90, thereby bridging the non-contiguous ends of tracks. The drawing depicts two interfitting male connections 61 in the shape of a tenon comprising the ends of each rail located at one end of the arced track and two interfitting female connections 62 in a shape corresponding to a recessed tenon comprising the ends of each rail located at the opposite end of the track.

[0070] The arced track is free of end boards as an element thereof removing an obstruction associated with prior art 23. The obstruction hinders entering or dismounting a track or traversing two connected tracks.

[0071] FIG 3B shows a perspective view of an arced rail 41. Each rail comprises step insertion elements 63 located in whole or part at the interior side of the rail 42. An element 63 may accommodate the insertion of a step 70 into or through the interior side of the rail 42, the top side of the rail 43, or the exterior side of the rail 44. The drawing depicts a single row of square shaped rung insertion elements 64 that accommodate rungs 71 with squared closures 75. Said elements 64 bore through the rail from the exterior side 44 to the interior side 42.

[0072] The ends of each arced rail 46 are comprised of an interfitting male connection 61 in the shape of a tenon and an interfitting female connection 62 in a shape corresponding to a recessed tenon. These elements are used to effect connections with contiguous rails of tracks, straight 30, arced 40, or curved 50, or to a contiguous distinct end coupler 90, thereby bridging the non-contiguous rails of tracks.

[0073] The surface of the top side of an arced rail 43 may be smooth or semi-rough. An anti-slide element 67 is affixed to the bottom side of the arced rail 45.

[0074] FIG 4A shows a topside view of a curved track 50. Said curved track comprises two oblong, rigid, curved rails each rail 51 of substantially equal height and width joined together by readily detachable steps 70. Each rail 51 comprises step insertion elements 63 located in whole or part at the interior side 52 of a rail into which a step 70 is inserted. An element 63 may accommodate the insertion of a step 70 into or through the interior side of the rail 52, the top side of the rail 53, or the exterior side of the rail 54. The drawing depicts a curved track 50 comprising two rigid, curved rails 51 joined together by readily detachable rungs 71, a type of step 70. Each rail 51 comprises square shaped rung insertion elements 64 into which a rungs 71 with squared closures 75 are inserted. The elements 64 bore through each rail 51 from the exterior side 54 to the interior side 52.

[0075] The curved track comprises elements 60 used to effect connections to a contiguous track or tracks, straight 30, arced 40, curved 50, or to a distinct end coupler 90, thereby bridging the non-contiguous ends of tracks. The drawing depicts two interfitting male connections 61 in the shape of a tenon comprising the ends of each rail located at one end of the curved track and two interfitting female connections 62 in a shape corresponding to a recessed tenon comprising the ends of each rail located at the opposite end of the track.

[0076] The curved track is free of end boards as an element thereof removing an obstruction associated with prior art 23. The obstruction hinders entering or dismounting a track or traversing two connected tracks.

[0077] FIG 4B shows a perspective view of a curved rail 51. Each rail comprises step insertion elements 63 located in whole or part at the interior side of the rail 52. An element 63 may accommodate the insertion of a step 70 into or through the interior side of the rail 52, the top side of the rail 53, or the exterior side of the rail 54. The drawing depicts a single row of

square shaped rung insertion elements **64** that accommodate rungs **71** with squared closures **75**. Said elements **64** bore through the rail from the exterior side **54** to the interior side **52**.

[0078] The ends of each curved rail **56** are comprised of an interfitting male connection **61** in the shape of a tenon and an interfitting female connection **62** in a shape corresponding to a recessed tenon. These elements are used to effect connections with contiguous rails of tracks, straight **30**, arced **40**, or curved **50**, or to a contiguous distinct end coupler **90**, thereby bridging the non-contiguous rails of tracks.

[0079] The surface of the top side of a curved rail **53** may be smooth or semi-rough. An anti-slide element **67** is affixed to the bottom side of the curved rail **55**.

[0080] FIGS 5A, 5B, and 5C show perspective views of rungs **71**, a type of step **70**, with oval **77**, rectangular **78**, and triangular **79** shaped colored footings, respectively. Each rung comprises an affixed flange **72** on the end of a first squared rung closure **73**, a geometrically shaped footing **74**, a second squared rung closure with a threaded female fastener **75**, and a threaded male flanged fastener **76** that is screwed into the second squared rung closure **75**. Each rung **71** is of substantially equal length and, when secured to the rails, of substantially equal height.

[0081] The preferred embodiment of the invention further includes additional features described below. Each additional feature is represented in a dependent claim identified in Claims 2 through 8 and shown in FIGS 2C, 3C, 4C, 6A, 7A, 7B, 7C, 8, 9, 10, 11, or 12.

[0082] FIG 2C shows a perspective view of a rectangular rail **31** wherein said rectangular rail comprises step insertion elements **63** located in whole or part at the interior side of the rail **32** in a pattern that permits the steps to be varied in height. An element **63** may accommodate the insertion of a step **70** into the interior side of the rail **32**, the top side of the rail **33**, or the exterior side of the rail **34**. The drawing depicts two rows of square shaped rung insertion elements **64** that accommodate rungs **71** with squared closures **75**. The upper row of elements **65** is located directly over the lower row of elements **66**. Insertion of a rung **71** into an element **64** located on either the upper **65** or lower **66** row and into the corresponding element **64** of the opposing rail results in the height of the rungs being varied. Said elements **64** bore through the rail from the exterior side **34** to the interior side **32**. In all other respects, this rectangular rail is identical to the rectangular rail shown in FIG 2B.

[0083] FIG 3C shows a perspective view of an arced rail 41 wherein said arced rail comprises step insertion elements 63 located in whole or part at the interior side of the rail 42 in a pattern that permits the steps to be varied in height. An element 63 may accommodate the insertion of a step 70 into the interior side of the rail 42, the top side of the rail 43, or the exterior side of the rail 44. The drawing depicts two rows of square shaped rung insertion elements 64 that accommodate rungs 71 with squared closures 75. The upper row of elements 65 is located directly over the lower row of elements 66. Insertion of a rung 71 into an element 64 located on either the upper 65 or lower 66 row and into the corresponding element 64 of the opposing rail results in the height of the rungs being varied. Said elements 64 bore through the rail from the exterior side 44 to the interior side 42. In all other respects, this arced rail is identical to the arced rail shown in FIG 3B.

[0084] FIG 4C shows a perspective view of a curved rail 51 wherein said curved rail comprises step insertion elements 63 located in whole or part at the interior side of the rail 52 in a pattern that permits the steps to be varied in height. An element 63 may accommodate the insertion of a step 70 into the interior side of the rail 52, the top side of the rail 53, or the exterior side of the rail 54. The drawing depicts two rows of square shaped rung insertion elements 64 that accommodate rungs 71 with squared closures 75. The upper row of elements 65 is located directly over the lower row of elements 66. Insertion of a rung 71 into an element 64 located on either the upper 65 or lower 66 row and into the corresponding element 64 of the opposing rail results in the height of the rungs being varied. Said elements 64 bore through the rail from the exterior side 54 to the interior side 52. In all other respects, this curved rail is identical to the curved rail shown in FIG 4B.

[0085] The preferred embodiment of the invention further includes an anti-tip device 80 for use with a straight track 30. FIG 6A shows a perspective view of said anti-tip device. The anti-tip device comprises an elongated, rectangular shaped planar surface 81 and two work holder areas 82. Each work holder area is in the shape of a rectangular rail 31 and bordered by two raised elongated work stop abutments, a tall exterior work stop abutment 84 comprising step insertion elements 86 and a shorter interior work stop abutment 85. The drawing depicts square shaped rung insertion elements 87. The anti-tip element 83 is comprised of the portions of the planar surface 81 extending out from each exterior work stop abutment 84. An anti-slide element 67 is affixed to the bottom side of the anti-tip device.

[0086] The preferred embodiment of the invention further includes a geometrically shaped distinct end coupler **90**. FIG 7A shows a perspective view of a diamond shaped distinct end coupler **95**. FIG 7B shows a perspective view of an octagon shaped distinct end coupler **96**. FIG 7C shows a perspective view of a rectangular shaped distinct end coupler **97**. Each distinct end coupler **90** comprises a planar surface **91** comprising elongated stripes **94** connecting the non-contiguous ends of two tracks in a visual sense. Each side of a distinct end coupler comprises either two interfitting male connections **92** in the shape of a tenon or two interfitting female connections **93** in a shape corresponding to a recessed tenon. These elements are used to effect connections with one or more contiguous tracks, straight **30**, arced **40**, or curved **50**, thereby bridging non-contiguous tracks. An anti-slide element **67** is affixed to the bottom side of each distinct end coupler.

[0087] The preferred embodiment of the invention further includes various design apparatuses each apparatus traversed horizontally by a human. Said apparatuses are shown in FIGS 8, 9, 10, 11, and 12. Each apparatus comprises a straight track **30** or tracks, an arced track **40** or tracks, or a curved track **50** or tracks, or a combination thereof. Each track comprising an apparatus is connected to one or more contiguous tracks or to a distinct end coupler **90**, thereby bridging the non-contiguous ends of tracks.

[0088] FIG 8 shows a topside view of the preferred embodiment of the invention in the design of a figure eight lying on its side. The apparatus is comprised of tracks contiguously connected and a diamond shaped distinct end coupler **95** used as a bridge to connect the non-contiguous ends of tracks. The distinct end coupler is located at the center of the apparatus.

[0089] FIG 9 shows a topside view of the preferred embodiment of the invention in the design of a figure eight lying on its side. The apparatus is comprised of tracks contiguously connected and an octagon shaped distinct end coupler **96** used as a bridge to connect the non-contiguous ends of tracks. The distinct end coupler is located at the center of the apparatus.

[0090] FIG 10 shows a topside view of the preferred embodiment of the invention in the design of a figure eight lying on its side laterally intersected at its center by a column of straight tracks. The apparatus is comprised of tracks contiguously connected and an octagon shaped distinct end coupler **96** used as a bridge to connect the non-contiguous ends of tracks,

including the column of straight tracks 30. The distinct end coupler is located at the center of the apparatus.

[0091] FIG 11 shows a topside view of the preferred embodiment of the invention in the design of a figure eight lying on its side laterally and longitudinally intersected at its center by a column and row of straight tracks. The apparatus is comprised of tracks contiguously connected and an octagon shaped distinct end coupler 96 used as a bridge to connect the non-contiguous ends of tracks, including the column and row of straight tracks 30. The distinct end coupler is located at the center of the apparatus.

[0092] FIG 12 shows a topside view of the preferred embodiment of an apparatus in the design of a circle enclosing a plus sign. Each arced track 40 comprising the circle is connected to one or more contiguous arced tracks or connected to one or more tracks, straight or arced, with the aid of a rectangular shaped distinct end coupler 97. Each straight track 30 comprising the plus sign is connected to one or more contiguous straight tracks or connected to one or more tracks, straight or arced, with the aid of a rectangular shaped distinct end coupler 97. A distinct end coupler 97 is located at the center of the plus sign bridging the non-contiguous ends of four straight tracks. Four distinct end couplers 97 are located at the ends of the plus sign each distinct end coupler intersecting and connecting with the circle of arced tracks bridging the non-contiguous ends of straight and arced tracks.

Operation – Preferred Embodiment

1. Traversing a Track, Tracks, or an Apparatus

[0093] The preferred embodiment of the invention is an article of educational equipment horizontally traversed by a human. The invention comprises tracks, straight 30, arced 40, or curved 50. A single track may be traversed. A track may be connected to a contiguous track or tracks, straight, arced, or curved, and the combination of tracks traversed. A track may be connected to a contiguous distinct end coupler 90 bridging one end of the track to the end of a non-contiguous track or tracks, straight, arced, or curved. The combination of tracks and the distinct end coupler are then traversed. Contiguous tracks and tracks with the aid of one or more distinct end couplers may be joined together to create an apparatus in a design shown in FIGS 8, 9, 10, 11, or 12. The apparatus is then traversed.

[0094] A human may traverse the geometrically shaped colored footings of the steps 70 of a track, straight, arced, or, curved, or walk upon the top side of either rail using the rail as a balance beam. The distance between the steps 70 may be adjusted to accommodate the stride of a human. The height of each step 70 is substantially the same if the rails comprising the track comprise level step insertion elements 63. The height of each step may vary if the rails comprising the track comprise step insertion elements 63 that are not level. The ability to adjust the height of the steps 70 increases the level of difficulty associated with traversing a track. An anti-slide element 67 is affixed to the bottom sides of each rail, distinct end coupler 90, and anti-tip device 80 preventing a track from shifting while under foot.

[0095] In addition to bridging the non-contiguous ends of tracks, a distinct end coupler 90 is used as an agent to traverse from one track to another. The planar surface 91 comprises elongated stripes 94 visually connecting non-contiguous ends of tracks thereby assisting a traversing human. A distinct end coupler is also used as a station on which a human stands while receiving instructions prior to traversing a track or apparatus.

[0096] An anti-tip device 80 may be employed to prevent tipping of a straight track 30 while under foot. An anti-tip device provides protection in two ways. First, an anti-tip element 83 is comprised of the portions of the elongated, rectangular planar surface 81 that extend out from each exterior work stop abutment 84. Second, the sides of each rectangular rail 31 lie adjacent to the exterior 84 and interior 85 work stop abutments gaining support. Additionally, each rail may be attached to the exterior work stop abutment 84 if the steps 70 are inserted through step insertion elements 86 comprising the abutment 84.

2. Assembling a Track

[0097] A track, straight 30, arced 40, or curved 50, is assembled by placing the bottom side of each rail on a flat surface directly opposite one another. To join the rails, readily detachable steps 70 are inserted into opposing step insertion elements 63 located in whole or part at the interior side of each rail. Each drawing in FIGS 2A, 3A, and 4A depicts a track, straight 30, arced 40, or curved 50, comprising two rails joined together by readily detachable rungs 71. Each drawing in FIGS 2B, 3B, and 4B depicts a rail, rectangular 31, arced 41, or curved 51, comprising a single row of square shaped rung insertion elements 64 located in whole or part at the interior side of each rail that accommodate rungs 71 with squared closures 75. A rung 71 is inserted into the exterior side of a rail and pushed through the rail exiting its interior side

and subsequently inserted into the opposite rail at its interior side and pushed through the rail exiting its exterior side whereupon the rung is secured by means of a threaded male flanged fastener 76 screwed into the squared rung closure 75.

[0098] Each drawing in FIGS 2C, 3C, and 4C depicts a rail comprising two rows of square shaped rung insertion elements 64 located in whole or part at the interior side of each rail that accommodate rungs 71 with squared closures 75. The upper row of elements 65 is directly over the lower row 66. A rung is perpendicularly inserted into or through an element 64 located on either the upper row 65 or lower row 66 of a rail and subsequently inserted into the corresponding row of the opposing rail. The height of the rung steps may be varied.

Otherwise, the method of installing or removing rungs is the same as that described in the above paragraph for a rail with a single row of elements 64.

[0099] After the steps 70 are secured and the track assembled, the steps are positioned length-wise in a perpendicular or diametrical relationship to each rail, are incapable of rotating or shifting horizontally, and serve to hold the rails in a fixed equidistant relationship to each other. Each readily detachable step 70 may be installed or removed without the necessity of dismantling a track.

[0100] A straight track may also be assembled with the aid of an anti-tip device 80. Refer to FIG 6B. The anti-tip device is positioned on a flat surface. Each rectangular rail 31 of a straight track is positioned upon the anti-tip device, within each work holder area 82, and directly opposite one another. Each work holder area is bordered by an exterior 84 and interior 85 work stop abutment. The exterior work stop abutments 84 are each comprised of two rows of step insertion elements 86 into which steps 70 are inserted. The drawing depicts exterior work stop abutments 84 comprised of square shaped rung insertion elements 87. The drawing also depicts a readily detachable rung 71 with a squared rung closure 75 which is inserted through the square shaped rung insertion element 87 comprising one of the exterior work stop abutments 84, through the square shaped rung insertion elements 64 comprising each rail, and finally through the square shaped rung insertion element 87 comprising the other exterior work stop abutment. Assembly of the track is complete when the rungs are fastened joining the opposing rails together in a fixed parallel relationship.

3. Connecting a Track to another Track or Distinct End Coupler

[0101] The ends of each track, straight **30**, arced **40**, or curved **50**, are either comprised of two interfitting male connections **61** in a shape of a tenon or two interfitting female connections **62** corresponding to a recessed tenon. The assembled tracks are positioned on a flat surface. The act of connecting contiguous tracks is accomplished by lifting a track, straight, arced, or curved, and positioning the tenons **61** of the lifted track into corresponding tenon shaped recesses **62** of a contiguous track.

[0102] A track may also be connected to a contiguous distinct end coupler **90**. Each side of a distinct end coupler comprises two matching elements used to effect connections to a contiguous track. The two matching elements are two interfitting male connections in a shape of a tenon **91** or two interfitting female connections in a shape corresponding to a recessed tenon **92**. The assembled track and distinct end coupler are positioned on a flat surface. The act of connecting the track and the distinct end coupler is accomplished by lifting the track and positioning the tenons **61** of the lifted track into corresponding tenon shaped recesses **92** of the distinct end coupler or placing the tenon shaped recesses **62** of the lifted track around the tenons **91** of the distinct end coupler.

[0103] Each apparatus arranged in the designs shown in FIGS 8, 9, 10, 11, and 12 is assembled by connecting contiguous tracks and one or more distinct end coupler as described above.

Description – Second Embodiment – Figs 13, 14, 15, 16A, 16B, and 16C

[0104] The second embodiment of the invention comprises straight **30**, arced **40**, and curved **50** tracks, each track comprising two rails joined together by affixed steps with geometrically shaped colored footings **170** and comprising a means **60** to connect to other tracks. Said second embodiment is described below and claimed in independent Claim 9.

[0105] FIG 13 shows a perspective view of a straight track **130**. Said straight track comprises two rigid, rectangular rails each rail **131** of substantially equal dimensions joined together by affixed, colored steps **170**. The drawing depicts affixed, colored rungs **171** comprising geometrically shaped footings **174**. Each rung **171** is of substantially equal length and affixed perpendicularly at the interior side of each rectangular rail **131** serving to hold the rails in a parallel relationship to each other.

[0106] The straight track comprises elements **60** used to effect connections to a contiguous track or tracks, straight **130**, arced **140**, or curved **150**, or to a distinct end coupler **90**, thereby bridging the non-contiguous ends of tracks. The drawing depicts two interfitting male connections **61** in the shape of a tenon located at one end of the straight track and two interfitting female connections **62** in a shape corresponding to a recessed tenon located at the opposite end of the track.

[0107] The surface of the top side of the elongated rail **131** may be smooth or semi-rough. An anti-slide element **67** is affixed to the bottom side of the elongated rail.

[0108] The straight track is free of end boards as an element thereof removing an obstruction associated with prior art **23**. The obstruction hinders entering or dismounting a track or traversing two connected tracks.

[0109] FIG 14 shows a perspective view of an arced track **140**. Said arced track comprises two oblong, rigid, arced rails each rail **141** of substantially equal height and width joined together by affixed, colored steps **170**. The drawing depicts affixed, colored rungs **171** comprising geometrically shaped footings **174**. Each rung **171** is of substantially equal length and diametrically affixed length-wise at the interior side of each arced rail serving to hold the directly opposing rails in an equidistant relationship to each other.

[0110] The arced track comprises elements **60** used to effect connections to a contiguous track or tracks, straight **130**, arced **140**, or curved **150**, or to a distinct end coupler **90**, thereby bridging the ends of tracks. The drawing depicts two interfitting male connections **61** in the shape of a tenon located at one end of the arced track and two interfitting female connections **62** in a shape corresponding to a recessed tenon located at the opposite end of the track.

[0111] The surface of the top side of the arced rail **141** may be smooth or semi-rough. An anti-slide element **67** is affixed to the bottom side of the arced rail.

[0112] The arced track is free of end boards as an element thereof removing an obstruction associated with prior art **23**. The obstruction hinders entering or dismounting a track or traversing two connected tracks.

[0113] FIG 15 shows a perspective view of a curved track **150**. Said curved track comprises two curved, oblong, rigid rails each rail **151** of substantially equal height and width joined together by affixed, colored steps **170**. The drawing depicts affixed, colored rungs **171** comprising geometrically shaped footings **174**. Each rung **171** is of substantially equal length

and diametrically or otherwise affixed length-wise at the interior side of each curved rail serving to hold the directly opposing rails in an equidistant relationship to each other.

[0114] The curved track comprises elements 60 used to effect connections to a contiguous track or tracks, straight 130, arced 140, or curved 150, or to a distinct end coupler 90, thereby bridging the ends of tracks. The drawing depicts two interfitting male connections 61 in the shape of a tenon located at one end of the arced track and two interfitting female connections 62 in a shape corresponding to a recessed tenon located at the opposite end of the track.

[0115] The surface of the top side of the curved rail 151 may be smooth or semi-rough. An anti-slide element 67 is affixed to the bottom side of the curved rail.

[0116] The curved track is free of end boards as an element thereof removing an obstruction associated with prior art 23. The obstruction hinders entering or dismounting a track or traversing two connected tracks.

[0117] FIGS 16A, 16B, and 16C show perspective cross-section views of affixed rungs 171, a type of step 170, with oval 177, rectangular 178, and triangular 179 shaped colored footings, respectively. A rectangular rail 131 is used as a backdrop although an arced or curved rail may have been depicted. Each rung is affixed length-wise at the interior side of each rail serving to hold the directly opposing rails in a fixed relationship to one another.

[0118] The second embodiment of the invention further includes additional features described below. Each additional feature is represented in a dependent claim identified in Claims 10 through 15 and is depicted in FIGS 6A, 7A, 7B, 7C, 8, 9, 10, 11, or 12.

[0119] The second embodiment of the invention further includes an anti-tip device 80 for use with a straight track 130. FIG 6A shows a perspective view of said anti-tip device. The anti-tip device comprises an elongated, rectangular shaped planar surface 81 and two work holder areas 82. Each work holder area is in the shape of a rectangular rail 31 and bordered by two raised elongated work stop abutments, a tall exterior work stop abutment 84 and a shorter interior work stop abutment 85. The drawing depicts rectangular shaped rung insertion elements 87, which are not used in this embodiment of the invention. The anti-tip element 83 is comprised of the portions of the planar surface 81 extending out from each exterior work stop abutment 84. An anti-slide element 67 is affixed to the bottom side of the anti-tip device.

[0120] The second embodiment of the invention further includes a geometrically shaped distinct end coupler 90. FIG 7A shows a perspective view of a diamond shaped distinct end coupler 95. FIG 7B shows a perspective view of an octagon shaped distinct end coupler 96.

FIG 7C shows a perspective view of a rectangular shaped distinct end coupler 97. Each distinct end coupler 90 comprises a planar surface 91 comprising elongated stripes 94 connecting the non-contiguous ends of two tracks in a visual sense. Each side of a distinct end coupler comprises either two interfitting male connections 92 in the shape of a tenon or two interfitting female connections 93 in a shape corresponding to a recessed tenon. These elements are used to effect connections with one or more contiguous tracks, straight 130, arced 140, or curved 150, thereby bridging non-contiguous tracks. An anti-slide element 67 is affixed to the bottom side of each distinct end coupler.

[0121] The second embodiment of the invention further includes various design apparatuses each apparatus traversed horizontally by a human. Said apparatuses are shown in FIGS 8, 9, 10, 11, and 12. Each apparatus comprises a straight track 130 or tracks, an arced track 140 or tracks, or a curved track 150 or tracks, or a combination thereof. Each track is connected to one or more contiguous tracks or to a distinct end coupler 90, thereby bridging non-contiguous ends of tracks.

[0122] FIG 8 shows a topside view of the second embodiment of the invention in the design of a figure eight lying on its side. The apparatus is comprised of tracks contiguously connected and a diamond shaped distinct end coupler 95 used as a bridge to connect the non-contiguous ends of tracks. The distinct end coupler is located at the center of the apparatus.

[0123] FIG 9 shows a topside view of the second embodiment of the invention in the design of a figure eight lying on its side. The apparatus is comprised of tracks contiguously connected and an octagon shaped distinct end coupler 96 used as a bridge to connect the non-contiguous ends of tracks. The distinct end coupler is located at the center of the apparatus.

[0124] FIG 10 shows a topside view of the second embodiment of the invention in the design of a figure eight lying on its side laterally intersected at its center by a column of straight tracks. The apparatus is comprised of tracks contiguously connected and an octagon shaped distinct end coupler 96 used as a bridge to connect the non-contiguous ends of tracks, including the column of straight tracks 130. The distinct end coupler is located at the center of the apparatus.

[0125] FIG 11 shows a topside view of the second embodiment of the invention in the design of a figure eight lying on its side laterally and longitudinally intersected at its center by a column and row of straight tracks. The apparatus is comprised of tracks contiguously connected and an octagon shaped distinct end coupler 96 used as a bridge to connect the non-

contiguous ends of tracks, including the column and row of straight tracks **130**. The distinct end coupler is located at the center of the apparatus.

[0126] FIG 12 shows a topside view of the second embodiment of the invention in the design of a circle enclosing a plus sign. Each arced track **140** comprising the circle is connected to one or more contiguous arced tracks or connected to one or more tracks, straight or arced, with the aid of a rectangular shaped distinct end coupler **97**. Each straight track **130** comprising the plus sign is connected to one or more contiguous straight tracks or connected to one or more tracks, straight or arced, with the aid of a contiguous rectangular shaped distinct end coupler **97**. A distinct end coupler **97** is located at the center of the plus sign bridging the non-contiguous ends of four straight tracks. Four distinct end couplers **97** are located at the ends of the plus sign each distinct end coupler intersecting and connecting with the circle of arced tracks bridging the non-contiguous ends of straight and arced tracks.

Operation – Second Embodiment

1. Traversing a Track, Tracks, or an Apparatus

[0127] The second embodiment of the invention is an article of educational equipment horizontally traversed by a human. The invention comprises tracks, straight **130**, arced **140**, or curved **150**. A single track may be traversed. A track may be connected to a contiguous track or tracks, straight, arced, or curved, and the combination of tracks traversed. A track may be connected to a contiguous distinct end coupler **90** bridging one end of the track to the end of a non-contiguous track or tracks, straight, arced, or curved. The combination of tracks and the distinct end coupler are then traversed. Contiguous tracks and tracks with the aid of one or more distinct end couplers may be joined together to create an apparatus in a design shown in FIGS 8, 9, 10, 11, or 12. The apparatus is then traversed.

[0128] A human may traverse geometrically shaped colored footings of the steps **170** of a track or walk upon the top side of either rail using the rail as a balance beam. The height of each step **170** is substantially the same. An anti-slide element **67** is affixed to the bottom sides of each rail, distinct end coupler **90**, and anti-tip device **80** preventing a track from shifting while being traversed.

[0129] In addition to bridging the non-contiguous ends of tracks, a distinct end coupler **90** is an agent used to traverse from one track to another. The planar surface **91** comprises

elongated stripes **94** visually connecting non-contiguous ends of tracks thereby assisting a walking human. A distinct end coupler is also used as a station on which a human stands while receiving instructions prior to traversing a track or apparatus.

[0130] An anti-tip device **80** may be employed to prevent tipping of a straight track **30** while under foot. An anti-tip device provides protection in two ways. First, an anti-tip element **83** is comprised of the portions of the elongated, rectangular planar surface **81** that extend out from each exterior work stop abutment **84**. Second, the sides of each rectangular rail **31** lie adjacent to the exterior **84** and interior **85** work stop abutments gaining support.

2. Connecting a Track to another Track or Distinct End Coupler

[0131] The ends of each track, straight **130**, arced **140**, or curved **150**, are either comprised of two interfitting male connections **61** in a shape of a tenon or two interfitting female connections **62** corresponding to a recessed tenon. The tracks are positioned on a flat surface. The act of connecting contiguous tracks is accomplished by lifting a track, straight, arced, or curved, and positioning the tenons **61** of the lifted track into corresponding tenon shaped recesses **62** of a contiguous track.

[0132] A track may also be connected to a contiguous distinct end coupler **90**. Each side of a distinct end coupler comprises two matching elements used to effect connections to a contiguous track. The two matching elements are two interfitting male connections in a shape of a tenon **91** or two interfitting female connections in a shape corresponding to a recessed tenon **92**. The track and distinct end coupler are positioned on a flat surface. The act of connecting the track and the distinct end coupler is accomplished by lifting the track and positioning the tenons **61** of the lifted track into corresponding tenon shaped recesses **92** of the distinct end coupler or placing the tenon shaped recesses **62** of the lifted track around the tenons **91** of the distinct end coupler.

[0133] Each apparatus arranged in the designs shown in FIGS 8, 9, 10, 11, and 12 is assembled by connecting contiguous tracks and one or more distinct end coupler as described above.

Description – Third Embodiment -- Figs 17, 18, 19, 16A, 16B, and 16C

[0134] The third embodiment of the present invention comprises straight **230**, arced **240**, and curved **250** tracks, each track comprising two rails joined together by affixed steps with geometrically shaped colored footings **170**. Said third embodiment is described immediately below and claimed in independent Claim 16.

[0135] FIG 17 shows a topside view of a straight track **230**. Said straight track comprises two rigid, rectangular rails each rail **231** of substantially equal dimensions joined together by affixed, colored steps **170**. The drawing depicts affixed, colored rungs **171** comprising geometrically shaped footings **174**. Each rung **171** is of substantially equal length and perpendicularly affixed at the interior side of each rectangular rail serving to hold the rails in a parallel relationship to each other. The surface of the top side of the rectangular rail **231** may be smooth or semi-rough.

[0136] The straight track is free of end boards as an element thereof removing an obstruction associated with prior art **23**. The obstruction hinders entering or dismounting a track or traversing two connected tracks.

[0137] FIG 18 shows a topside view of an arced track **240**. Said arced track comprises two oblong, rigid, arced rails each rail **241** of substantially equal height and width joined together by affixed, colored steps **170**. The drawing depicts affixed, colored rungs **171** comprising geometrically shaped footings **174**. Each rung **171** is of substantially equal length and diametrically affixed length-wise at the interior side of each arced rail serving to hold the directly opposing rails in an equidistant relationship to each other. The surface of the top side of the arced rail **241** may be smooth or semi-rough.

[0138] The arced track is free of end boards as an element thereof removing an obstruction associated with prior art **23**. The obstruction hinders entering or dismounting a track or traversing two connected tracks.

[0139] FIG 19 shows a topside view of a curved track **250**. Said curved track comprises two curved, oblong, rigid rails each rail **251** of substantially equal height and width joined together by affixed, colored steps **170**. The drawing depicts affixed, colored rungs **171** comprising geometrically shaped footings **174**. Each rung **171** is of substantially equal length and diametrically or otherwise affixed length-wise at the interior side of each curved rail

serving to hold the directly opposing rails in an equidistant relationship to each other. The surface of the top side of the curved rail **251** may be smooth or semi-rough.

[0140] The curved track is free of end boards as an element thereof removing an obstruction associated with prior art **23**. The obstruction hinders entering or dismounting a track or traversing two connected tracks.

[0141] FIGS 16A, 16B, and 16C show perspective cross-section views of affixed rungs **171**, a type of step **170**, with oval **177**, rectangular **178**, and triangular **179** shaped colored footings, respectively. A rectangular rail **231** is used as a backdrop although an arced or curved rail may have been depicted. Each rung is affixed length-wise at the interior side of each rail serving to hold the directly opposing rails in a fixed relationship to one another.

[0142] The third embodiment of the invention further includes additional features described below. Each additional feature is represented in a dependent claim identified in Claims 17 through 20 and is depicted in FIGS 20, 21, 22, and 23.

[0143] The third embodiment of the invention further includes various design apparatuses each apparatus traversed horizontally by a walking human. Said apparatuses are shown in FIGS 20, 21, 22, and 23. Each apparatus comprises a straight track or tracks **230**, an arced track or tracks **240**, or a curved track or tracks **250**, or a combination thereof.

[0144] FIG 20 shows a topside view of the third embodiment of the invention in the design of a figure eight lying on its side. The apparatus is comprised of one or more straight, arced, or curved tracks.

[0145] FIG 21 shows a topside view of the third embodiment of the invention in the design of a figure eight lying on its side laterally intersected at its center by a column of straight tracks. The apparatus is comprised of one or more straight, arced, or curved tracks.

[0146] FIG 22 shows a topside view of the third embodiment of the invention in the design of a figure eight lying on its side laterally and longitudinally intersected at its center by a column and row of straight tracks. The apparatus is comprised of one or more straight, arced, or curved tracks.

[0147] FIG 23 shows a topside view of the third embodiment of the invention in the design of a circle enclosing a plus sign. The circle is comprised of one or more arced tracks **240**. The plus sign is comprised of two or more straight tracks **230**. The arced and straight tracks may be connected to one another.

Operation – Third Embodiment

Traversing a Track, Tracks, or an Apparatus

[0148] The third embodiment of the invention is an article of educational equipment horizontally traversed by a walking human. The invention comprises tracks, straight **230**, arced **240**, or curved **250**. A single track may be traversed. A track may be joined to one or more tracks, straight, arced, or curved, and the combination of tracks traversed. Tracks may be joined together to create an apparatus in a design shown in FIGS 20, 21, 22, or 23. The apparatus is then traversed.

[0149] A human may traverse the colored, geometrically shaped step **170** of a track or walk upon the top side of either rail using the rail as a balance beam. The height of each step **170** is substantially the same.

Advantages of the Embodiments of the Invention

[0150] From the descriptions above, a number of advantages of the embodiments of the invention over prior art become apparent:

[0151] Each embodiment comprises straight, arced, and curved tracks.

[0152] Each track of the preferred embodiment comprises two rails that are joined together by readily detachable steps. One or more steps may be removed without the necessity of dismantling the track. The steps may be adjusted to accommodate the stride of a walking human. If the rails of a track comprise step insertion elements that are not level, the height of the rungs may be varied increasing the traversing challenge.

[0153] Each embodiment comprises steps with colored footings that are oval, rectangular, or triangular shaped.

[0154] Each track of the preferred and second embodiments comprise track connecting elements used to effect connections with one or more contiguous tracks or a contiguous distinct end coupler.

[0155] Each embodiment comprises tracks that are free of end boards removing an obstruction associated with prior art. The obstruction would otherwise hinder entering or dismounting a track or traversing two connected tracks. As regards the preferred embodiment, the removal of the end boards also increases versatility as the rails of a straight track may be

widened or narrowed to accommodate teaching methods and traversing alternatives, such as by wheelchair.

[0156] The preferred and second embodiments further include an anti-tip device used with a straight track that prevents tipping of the track while being traversed. In the preferred embodiment, the anti-tip device is also used as an aid in the assembly of a straight track.

[0157] The preferred and second embodiments further include a geometrically distinct end coupler, an intermediate structure that bridges the non-contiguous ends of two or more tracks, straight, arced, or curved. In addition to bridging the ends of tracks, a distinct end coupler is used as an agent to traverse from one track to another as a station on which a human stands while receiving instructions prior to traversing a track or tracks.

[0158] The preferred and second embodiments further include a number of apparatuses using the design of a figure eight lying on its side. The apparatuses are comprised of tracks, straight, arced, or curved, contiguously connected and a distinct end coupler used as a bridge to connect the non-contiguous ends of tracks. The apparatuses described in the third embodiment comprise tracks but not a distinct end coupler. A human traverses the steps or rung footings or a rail, using the rail as a balance beam, performing specific routines that are intended to increase learning capabilities. The functions of these design apparatuses are in addition to those functions that are accomplished with tracks, straight, arced, or curved, not used in combination. For example, a human traverses the apparatuses forming the letters of the alphabet, and, as a result, the brain is imprinted with the letters of the alphabet.

[0159] The preferred and second embodiments further include an apparatus in the design of a circle enclosing a plus sign. The apparatus is comprised of tracks, arced and straight, contiguously connected and a distinct end coupler used as a bridge to connect the non-contiguous ends of tracks. The apparatus described in the third embodiment comprise tracks but not a distinct end coupler. A walking human traverses the steps or rung footings or a rail, using the rail as a balance beam, performing specific routines that are intended to increase learning capabilities. The functions of the design apparatus are in addition to those functions that are accomplished with tracks, straight, arced, or curved, not in combination. For example, a walking human traverses the circle as if it was a timepiece or map.

Conclusion, Ramifications, and Scope

[0160] Accordingly, the invention is a significant improvement over prior art promoting, fostering, and facilitating the learning process. The invention comprises tracks, straight, arced, and curved, and design apparatuses comprising tracks. The tracks comprise unique elements. Each rail comprises elements used to effect connections to other tracks and elements into or through which readily detachable rungs are inserted. The invention also comprises distinct end couplers used to connect non-contiguous tracks and an anti-tip device used with a straight track to avoid tipping.

[0161] Based upon brain research findings that supports the link of movement to learning, the result achieved by a human traversing a track or an apparatus, comprising the tracks, is increased sensory motor development, longer focus and attention, coordination of motor skills, better balance in the vestibular system, awareness of basic rhythmic patterns, and improved learning readiness. The basic design of the tracks, including the shapes and colors of the rungs, and the designs of the apparatuses provide the framework for the development of academic concepts including, but not limited to, color, shape, and number recognition, basic math operations, early literacy, reading readiness, handwriting skills, map skills, time concepts, and other basic early childhood curriculum. Because the tracks are traversed while practicing academic concepts, the learning is anchored in the brain for better memory retention and retrieval as a human has combined physical and cognitive domains.

[0162] If humans jointly participate in a track activity including the assembly of a track, building an apparatus of tracks, traversing a track or an apparatus, or disassembly of a track or an apparatus, team concepts, peer help, and cooperation skills are developed resulting in better social behavior and life skills.

[0163] The material used to manufacture a rail, a distinct end coupler, and an anti-tip device must be sturdy, durable, color-safe, and weather resistant. An assembled track should be light in weight making the track easy to assemble and dismantle, connect to other tracks or couplers, transport, and store. However, a track must be of a sufficient weight to avoid shifting while under foot. The material used to manufacture a rung must also be sturdy, durable, color-safe, and weather resistant. A step or rung must be capable of withstanding a considerable weight. If the tracks are used outdoors, the material used to manufacture the rails, steps, and rungs must be heavier and rust resistant.

[0164] Although the description above contains much specificity, it should not be construed as limiting the scope of the invention but merely providing illustrations of some of the embodiments of this invention. For example, the shapes of rails and the shape and location of the elements comprising rails including the step insertion and track connecting elements, the shapes of steps, the shapes of distinct end couplers and the elements comprising a coupler, and the designs of the apparatuses are not limited to the shapes, locations, and designs shown in the drawings. The methods used to install readily detachable steps or connect tracks are not limited to those shown or described.

[0165] Thus the scope of the invention should be determined by the appended claims and their legal equivalents, rather than by the examples given.